



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2022-1406; Project Identifier MCAI-2022-00590-G; Amendment 39-22347; AD 2023-03-22]

RIN 2120-AA64

Airworthiness Directives; DG Flugzeugbau GmbH and Schempp-Hirth

Flugzeugbau GmbH Gliders

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is superseding Airworthiness Directive (AD) 2015-09-04 R1, which applied to DG Flugzeugbau GmbH Model DG-1000T gliders equipped with a Solo Kleinmotoren GmbH (currently Solo Vertriebs-und Entwicklungs-GmbH) (Solo) Model 2350 C engine. AD 2015-09-04 R1 prohibited operation of the engine and required performing a magnetic particle or dye penetrant inspection of the propeller shaft and reporting the results of the inspection to Solo. This AD is prompted by mandatory continuing airworthiness information (MCAI) originated by an aviation authority of another country to identify and correct an unsafe condition on an aviation product. The MCAI identifies the unsafe condition as occurrences of rupture of the eccentric axle on Solo Model 2350 C engines (installed on DG Flugzeugbau GmbH Model DG-1000T gliders in the United States) and an occurrence on a Solo Model 2350 D engine (installed on Schempp-Hirth Flugzeugbau GmbH (Schempp-Hirth) Model Duo Discus T gliders in the United States). This AD requires repetitive replacement of the eccentric axle, adds the Schempp-Hirth Model Duo Discus T gliders to the applicability, and retains from AD 2015-09-04 R1 the option of operating the glider with the engine non-operative instead of

replacing the eccentric axle. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES:

AD Docket: You may examine the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2022-1406; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, the MCAI, any comments received, and other information. The address for Docket Operations is U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

Material Incorporated by Reference:

- For service information identified in this final rule, contact Solo Kleinmotoren GmbH, Postfach 600152, D71050 Sindelfingen, Germany; phone: +49 703 1301-0; fax: +49 703 1301-136; email: aircraft@solo-germany.com; website: aircraft.solo.global/gb/.
- You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 901 Locust, Kansas City, MO 64106. For information on the availability of this material at the FAA, call (817) 222-5110. It is also available at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2022-1406.

FOR FURTHER INFORMATION CONTACT: Jim Rutherford, Aviation Safety Engineer, General Aviation & Rotorcraft Section, International Validation Branch, FAA,

901 Locust, Room 301, Kansas City, MO 64106; phone: (816) 329-4165; email:

jim.rutherford@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to supersede AD 2015-09-04 R1, Amendment 39-18492 (81 FR 26124, May 2, 2016) (AD 2015-09-04 R1). AD 2015-09-04 R1 applied to DG Flugzeugbau GmbH Model DG-1000T gliders equipped with a Solo Model 2350 C engine. AD 2015-09-04 R1 prohibited operation of the engine and required performing a magnetic particle or dye penetrant inspection of the propeller shaft and reporting the results of the inspection to Solo. The FAA issued AD 2015-09-04 R1 to address failure of the engine shaft with consequent propeller detachment. The unsafe condition, if not addressed, could result in damage to the glider or injury of persons on the ground.

The NPRM published in the *Federal Register* on December 13, 2022 (87 FR 76166). The NPRM was prompted by AD 2022-0044R1, dated April 29, 2022 (referred to after this as “the MCAI”), issued by the European Union Aviation Safety Agency (EASA), which is the Technical Agent for the Member States of the European Union. The MCAI states an occurrence of rupture of the eccentric axle on a Solo Model 2350 D engine (installed on Schempp-Hirth Model Duo Discus T gliders in the United States). The MCAI requires replacing the eccentric axle with a new part and establishing a life limit for this part.

You may examine the MCAI in the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2022-1406.

In the NPRM, the FAA proposed to retain a certain action from AD 2015-09-04 R1 in that the NPRM proposed to continue to allow the operating limitation for the DG Flugzeugbau GmbH Model DG-1000T gliders equipped with a Solo Model 2350 C

instead of replacing the eccentric axle. The NPRM also proposed to add the Schempp-Hirth Model Duo Discus T gliders equipped with a Solo Model 2350 D engine to the applicability, and require repetitive replacement of the eccentric axle. The NPRM also proposed to require incorporation of the final rule into the Limitations section of the existing aircraft flight manual for your glider if the operator chooses to operate the glider with the engine inoperative. The owner/operator (pilot) holding at least a private pilot certificate may perform the proposed incorporation of the operating limitation into the flight manual of the glider and removal of the operating limitation, and the actions must be entered into the aircraft records showing compliance with this AD in accordance with 14 CFR 43.9(a) and 14 CFR 91.417(a)(2)(v). The record must be maintained as required by 14 CFR 91.417, 121.380, or 135.439. The proposed incorporation of the operating limitation into the existing flight manual of your glider and removal of the operating limitation are not considered maintenance actions and may be done equally by a pilot or a mechanic. This is an exception to the FAA's standard maintenance regulations.

The FAA is issuing this AD to address the unsafe condition on these products.

Discussion of Final Airworthiness Directive

Comments

The FAA received no comments on the NPRM or on the determination of the costs.

Conclusion

These products have been approved by the aviation authority of another country and are approved for operation in the United States. Pursuant to the FAA's bilateral agreement with this State of Design Authority, it has notified the FAA of the unsafe condition described in the MCAI referenced above. The FAA reviewed the relevant data and determined that air safety requires adopting this AD as proposed. Accordingly, the

FAA is issuing this AD to address the unsafe condition on these products. Except for minor editorial changes, this AD is adopted as proposed in the NPRM.

Related Service Information under 1 CFR Part 51

The FAA reviewed Solo Kleinmotoren GmbH Technische Mitteilung (English translation: Service Bulletin), Nr. 4603-19, datum (English translation: dated) January 31, 2022, which specifies procedures for replacing the eccentric axle with eccentric axle part number (P/N) 2031211V2 for Solo Model 2350 D engines, which are installed on Schempp-Hirth Model Duo Discus T gliders in the United States.

This material is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in ADDRESSES.

Differences Between this AD and the MCAI

The MCAI, for the DG Flugzeugbau GmbH Model DG-1000T gliders equipped with a Solo Model 2350 C engine, has a compliance time for the initial eccentric axle replacement based on the effective date of superseded EASA AD 2015-0052-E, dated March 27, 2015. This AD has a compliance time for these gliders based on the effective date of the final rule because there was not a requirement in AD 2015-09-04 R1 to replace the eccentric axle.

Costs of Compliance

The FAA estimates that this AD affects 8 gliders of U.S. registry. The FAA estimates the following costs to comply with this AD:

Estimated costs

Action	Labor Cost	Parts Cost	Cost per product	Cost on U.S. operators
Replace the eccentric axle	2 work-hours x \$85.00 per hour = \$170	\$100	\$270 per replacement cycle	\$2,160 per replacement cycle

If any operator chooses to not replace the eccentric axle and instead operates the glider with the engine inoperative, the operating limitation incorporation will take .5 work-hour at \$85 per hour for a total of \$42.50 per glider. If at any time after, the operator chooses to remove the operating limitation, this action would also take .5 work-hour at \$85 per hour for a total of \$42.50 per glider.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

The FAA has determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a "significant regulatory action" under Executive Order 12866,
- (2) Will not affect intrastate aviation in Alaska, and

(3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§§ 39.13 [Amended]

2. The FAA amends § 39.13 by:

a. Removing Airworthiness Directive 2015-09-04 R1, Amendment 39-18492 (81 FR 26124, May 2, 2016); and

b. Adding the following new airworthiness directive:

2023-03-22 DG Flugzeugbau GmbH and Schempp-Hirth Flugzeugbau GmbH:
Amendment 39-22347; Docket No. FAA-2022-1406; Project Identifier MCAI-2022-00590-G.

(a) Effective Date

This airworthiness directive (AD) is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD replaces AD 2015-09-04 R1, Amendment 39-18492 (81 FR 26124, May 2, 2016).

(c) Applicability

This AD applies to DG Flugzeugbau GmbH Model DG-1000T gliders and Schempp-Hirth Flugzeugbau GmbH (Schempp-Hirth) Model Duo Discus T gliders, all serial numbers, certificated in any category, with a Solo Vertriebs-und Entwicklungs-GmbH (previously Solo Kleinmotoren GmbH) (Solo) Model 2350 C or Model 2350 D engine installed.

(d) Subject

Joint Aircraft System Component (JASC) Code 7200, Engine (Turbine/Turboprop).

(e) Unsafe Condition

This AD was prompted by mandatory continuing airworthiness information (MCAI) originated by an aviation authority of another country to identify and correct an unsafe condition on an aviation product. The MCAI identifies the unsafe condition as occurrences of rupture of the eccentric axle on Solo Model 2350 C engines (installed on DG Flugzeugbau GmbH Model DG-1000T gliders in the United States) and an occurrence on a Solo Model 2350 D engine (installed on Schempp-Hirth Model Duo Discus T gliders in the United States). The FAA is issuing this AD to prevent failure of the engine shaft with consequent propeller detachment. The unsafe condition, if not addressed, could result in damage to the glider or injury of persons on the ground.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Required Actions

(1) For DG Flugzeugbau GmbH Model DG-1000T gliders equipped with a Solo Model 2350 C engine, before further flight after the effective date of this AD, replace each eccentric axle that is not part number (P/N) 2031211V2 with an eccentric axle that is P/N 2031211V2 that has zero hours time-in-service (TIS).

Note 1 to paragraph (g)(1): DG Flugzeugbau Technical Note 1000/26, dated September 23, 2015, contains information related to replacing the eccentric axle specific for the DG Flugzeugbau GmbH Model DG-1000T gliders. Solo Kleinmotoren GmbH Technische Mitteilung (English translation: Service Bulletin), Nr. 4603-17, datum (English translation: dated) July 15, 2015, contains information related to replacing the eccentric axle for the Solo Model 2350 C engine, but is not specific to the DG Flugzeugbau GmbH Model DG-1000T gliders.

(2) For Schempp-Hirth Model Duo Discus T gliders equipped with a Solo Model 2350 D engine, within 30 hours TIS of engine operation after the effective date of this AD, replace each eccentric axle that is not P/N 2031211V2 with an eccentric axle that is P/N 2031211V2 that has zero hours TIS in accordance with Action 1, Note 2, and Pictures 1 through 6 of Solo Kleinmotoren GmbH Technische Mitteilung (English translation: Service Bulletin), Nr. 4603-19, datum (English translation: dated) January 31, 2022.

Note 2 to paragraph (g)(2): This service information contains German to English translation. The European Union Aviation Safety Agency (EASA) used the English translation in referencing the document. For enforceability purposes, the FAA will refer to the Solo Kleinmotoren service information in English as it appears on the document.

(3) For all gliders, after the initial replacement required by paragraph (g)(1) or (2) of this AD, as applicable, or if an eccentric axle P/N 2031211V2 was installed as of the effective date of this AD, within intervals not to exceed 50 hours TIS of engine operation, replace each eccentric axle P/N 2031211V2 with an eccentric axle P/N 2031211V2 that has zero hours TIS as specified in paragraph (g)(1) or (2) of this AD, as applicable.

(4) It is allowed to operate a glider having a Solo Model 2350 C or Model 2350 D engine installed with the engine inoperative instead of replacing the eccentric axle. To

operate with the engine inoperative, place a copy of this AD into the Limitations section of the existing aircraft flight manual for your glider and do not operate the engine.

(i) Remove this operating limitation after replacing the eccentric axle as required by paragraphs (g)(1) or (2) and (3) of this AD.

(ii) The owner/operator (pilot) holding at least a private pilot certificate may perform both the incorporation and removal of the operating limitation and the actions must be entered into the aircraft records showing compliance with this AD in accordance with 14 CFR 43.9(a) and 14 CFR 91.417(a)(2)(v). The record must be maintained as required by 14 CFR 91.417, 121.380, or 135.439.

(h) Alternative Methods of Compliance (AMOCs)

The Manager, International Validation Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in § 39.19. In accordance with § 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the International Validation Branch, mail it to the address identified in paragraph (i)(2) of this AD or email to: 9-AVS-AIR-730-AMOC@faa.gov. If mailing information, also submit information by email. Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(i) Additional Information

(1) Refer to EASA AD 2022-0044R1, dated April 29, 2022, for related information. This EASA AD may be found in the AD docket at regulations.gov under Docket No. FAA-2022-1406.

(2) For more information about this AD, contact Jim Rutherford, Aviation Safety Engineer, General Aviation & Rotorcraft Section, International Validation Branch, FAA,

901 Locust, Room 301, Kansas City, MO 64106; phone: (816) 329-4165; email: jim.rutherford@faa.gov.

(3) Solo service information identified in this AD that is not incorporated by reference is available at the addresses specified in paragraphs (j)(3) and (4) of this AD.

(j) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) Solo Kleinmotoren GmbH Technische Mitteilung (English translation: Service Bulletin), Nr. 4603-19, datum (English translation: dated) January 31, 2022.

Note 3 to paragraph (j)(2)(i): This service information contains German to English translation. The EASA used the English translation in referencing the document. For enforceability purposes, the FAA will refer to the Solo Kleinmotoren service information in English as it appears on the document.

(ii) [Reserved]

(3) For Solo service information identified in this AD, contact Solo Kleinmotoren GmbH, Postfach 600152, D71050 Sindelfingen, Germany; phone: +49 703 1301-0; fax: +49 703 1301-136; email: aircraft@solo-germany.com; website: aircraft.solo.global/gb/.

(4) You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 901 Locust, Kansas City, MO 64106. For information on the availability of this material at the FAA, call (817) 222-5110.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the

availability of this material at NARA, email: fr.inspection@nara.gov, or go to:

www.archives.gov/federal-register/cfr/ibr-locations.html.

Issued on February 10, 2023.

Christina Underwood, Acting Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.

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